

WHAT IS CLAIMED IS:

1. A modular endovascular graft device for treating vasculature,

comprising:

a first graft component having a first wall; and

5 a second graft component having a second wall, the second graft

component including a frame with a plurality of radially extending components

which upon assembling the first and second components, at least one of the

plurality of the radially extending components extends through both the first wall

and the second wall.

2. The device of claim 1, wherein the frame is in the form of a self-expanding stent.

3. The device of claim 1, the second component further comprising a plurality of pre-fabricated holes, at least one pre-fabricated hole being in alignment with one radially extending component.

4. The device of claim 1, wherein the plurality of radially extending components are in the form of hooks or barbs.

5. The device of claim 4, wherein the hooks or barbs have sharpened points.

6. The device of claim 4, wherein the hooks or barbs are pointed in a caudal direction.

7. The device of claim 1, wherein the radially extending component has a length sufficient to extend through the wall of the first graft component and into a wall of vasculature.

8. The device of claim 1, the first graft component further comprising a superior end and an inferior end, the inferior end including at least one limb support section.

9. The device of claim 1, wherein the first graft component is bifurcated.

10. The device of claim 1, wherein the second graft component has a tubular configuration.

11. The device of claim 1, wherein the second graft has a proximal end and distal end, the distal end including a self-expanding stent.

12. The device of claim 1, further comprising fuzzy tufts of yarn configured at a junction between the first and second components.

13. The device of claim 1, further comprising additional graft components, each having a wall and including a frame with a plurality of radially extending components which, upon assembling each additional component and the previously assembled components, at least one of the plurality of radially extending components extend through both the wall of the additional component and the wall of at least one of the previously assembled components such that a successive chain of assembled components is formed.

14. The device of claim 1, one or more components reinforced with a thin coating of a biocompatible elastomer applied to the graft material.

15. The device of claim 14, the biocompatible elastomer applied to specific areas of the graft material.

16. The device of claim 14, the biocompatible elastomer a polyurethane co-polymer dip-coated onto the surface of the graft material.

17. The device of claim 1, the graft material weave pattern of one or more components altered to provide extra strength.

18. A modular graft device for treating vasculature, comprising:
a first graft component;
a second graft component; and
a mechanical joint between the first and second graft components, the
mechanical joint having structure such that the bond between the first and second
graft components is strengthened as the longitudinal load on the mechanical joint
increases.

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19. The modular graft device of claim 18, wherein the first and
second graft components are mechanically interconnected.

20. The modular graft device of claim 18, the mechanical joint further
comprising an inner cuff attached to the first graft component.

21. The modular graft device of claim 18, the mechanical joint further
comprising an inward taper attached to the first graft component.

22. The modular graft device of claim 18, the mechanical joint further
comprising an inner flap attached to the first graft component.

23. The modular graft device of claim 18, wherein one of the first or
second graft components is flared.

24. The modular graft device of claim 18, the mechanical joint further comprising an outward protrusion attached to the second graft component.

25. The modular graft device of claim 18, the mechanical joint further comprising an outward taper attached to the second graft component.

26. The modular graft device of claim 18, the mechanical joint further comprising an outer flap attached to the second graft component.

27. The modular graft device of claim 18, the first component further comprising a tapered sleeve that facilitates funneling of blood to the second graft component.

28. The modular graft device of claim 18, wherein the first graft component is bifurcated.

29. The modular graft device of claim 18, further comprising at least one self-expanding stent which is operatively associated with the mechanical joint.

30. A modular graft device for treating vasculature, comprising:
a first graft component configured with a radially adjustable structure;
and
a second graft component which when placed in contact with the first
5 graft component, causes the radially adjustable structure to accomplish an
attachment between the first graft component and the second graft component.

31. The modular graft device of claim 30, the radially adjustable
structure further comprising a thread.

32. The modular graft device of claim 30, wherein the thread is
configured into a form of a lasso.

33. The modular graft device of claim 32, the lasso further comprising
a plurality of slip knots.

34. The modular graft device of claim 32, the lasso further comprising
a first slip knot and a second slip knot positioned proximal the first slip knot.

35. The modular graft device of claim 34, the second graft component
further comprising a self-expanding frame which causes a slip knot to tighten
when the frame expands.

36. The modular graft device of claim 30, wherein the first graft component is bifurcated.

37. The modular graft device of claim 30, wherein the second graft component has a generally tubular configuration.

38. The modular graft device of claim 35, further comprising at least one expandable frame attached to the first graft component.

39. The modular graft device of claim 35, further comprising at least one expandable frame attached to the second graft component.